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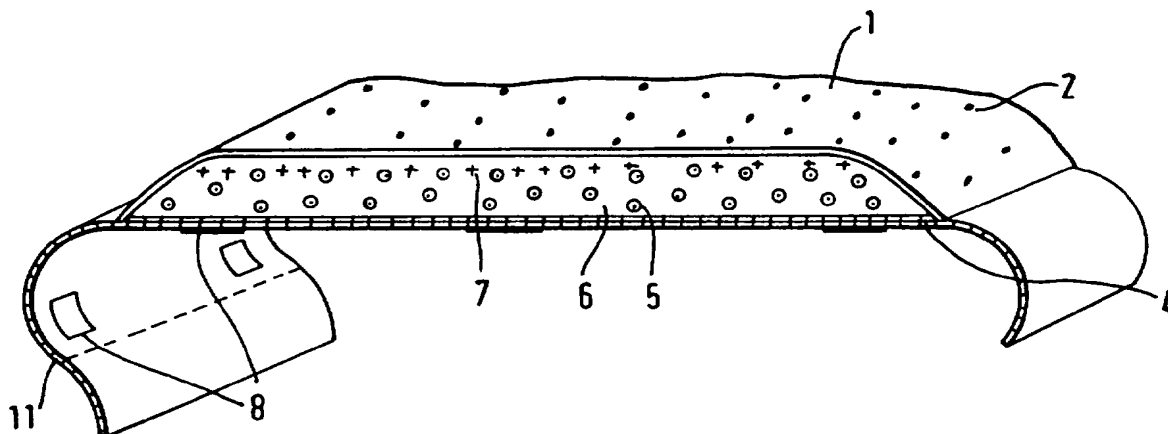
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(58) Field of Search
UK CL (Edition O) **A4M , A4S S13 , A5R RPV**
INT CL⁶ **A47C 21/06 , A47G 9/02 , A61F 5/48**

(54) **Liquid absorbent bedding**

(57) Disposable bedding for infants comprises a liquid absorbent compressible core 6 between a liquid permeable non-absorbent upper layer 1 and an impermeable backing sheet 4. The device may be used as a mattress cover or as the mattress itself. It may include a wetness indicator, fragrant or medicinal compounds, and means such as adhesive patches 8, hook-and-loop fasteners (9, Fig 4c), corner gussets (10, Fig 4b) or flaps 11 for securing it in place.

FIG. 3



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FIG. 1

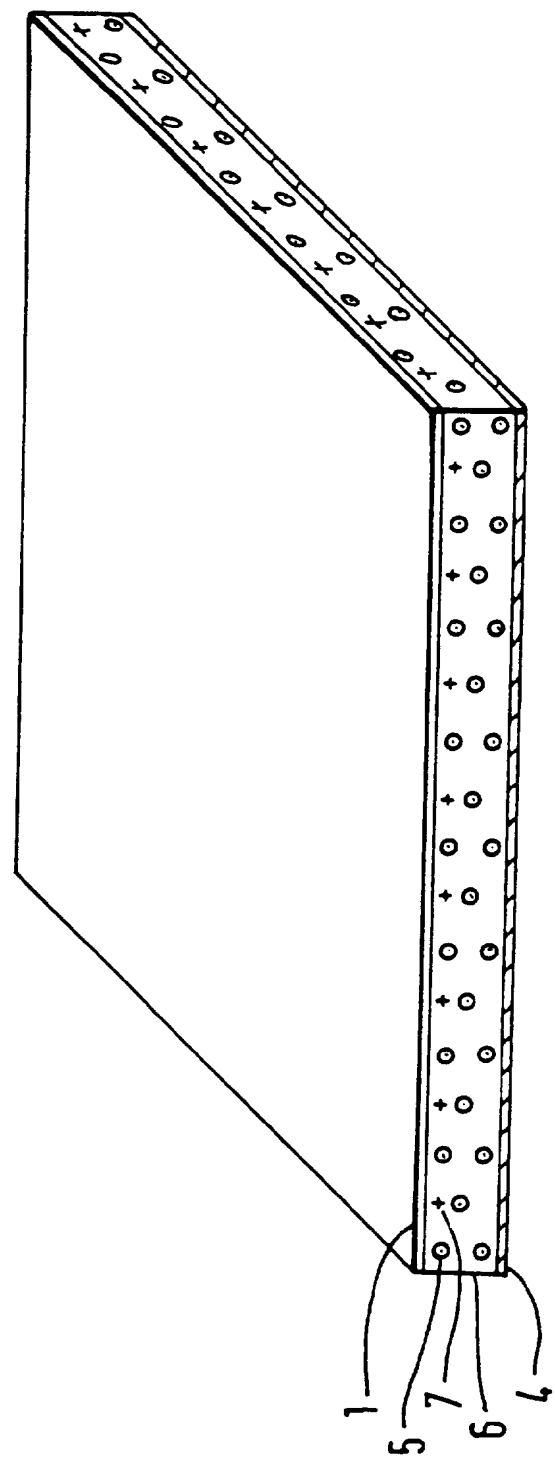


FIG. 2

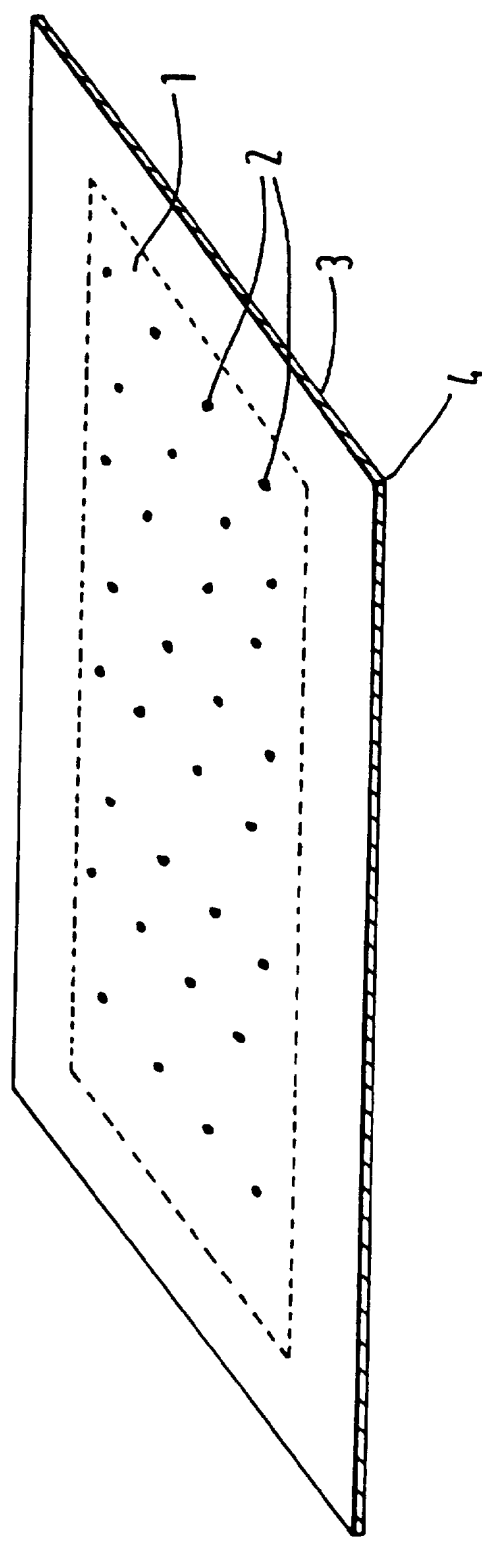
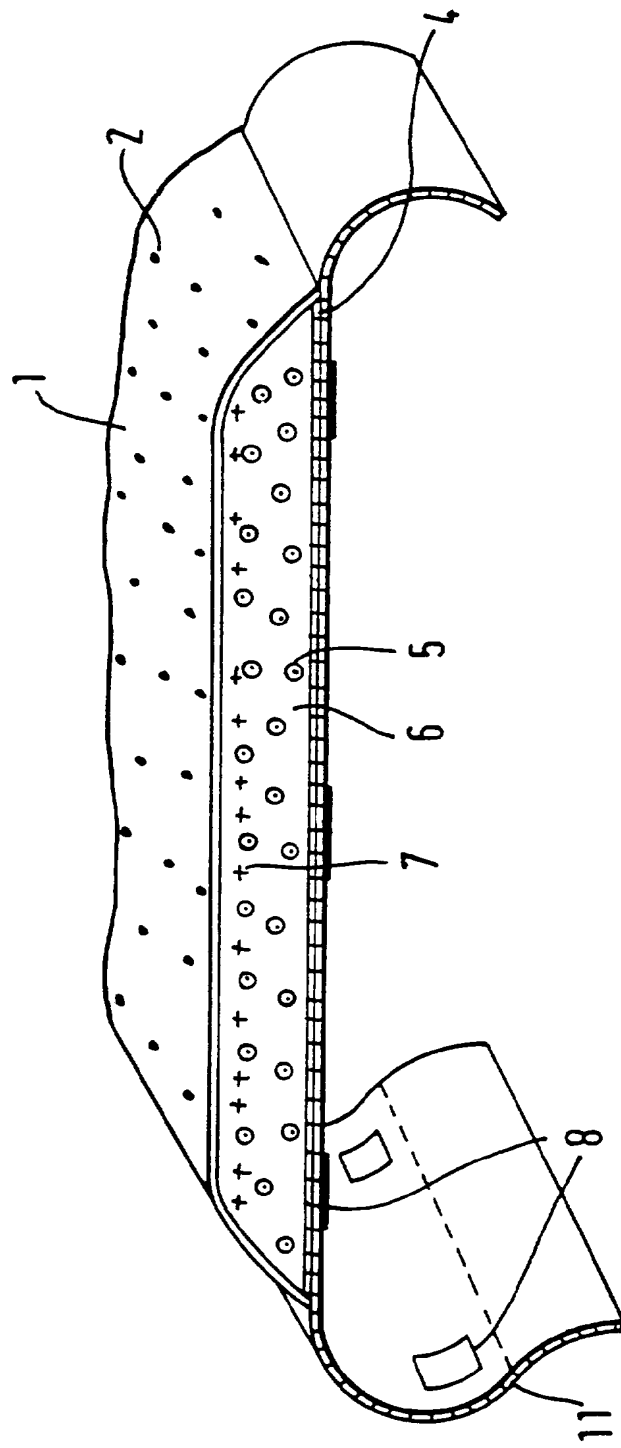


FIG. 3



4/4
FIG. 4a

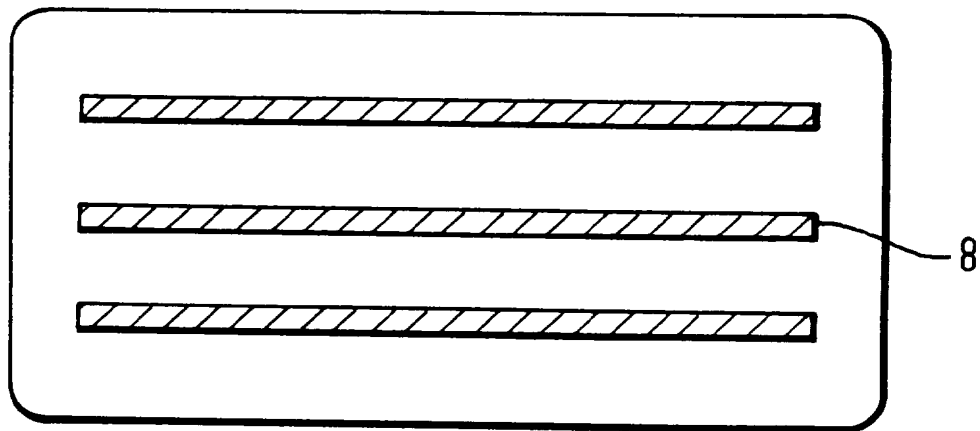


FIG. 4b

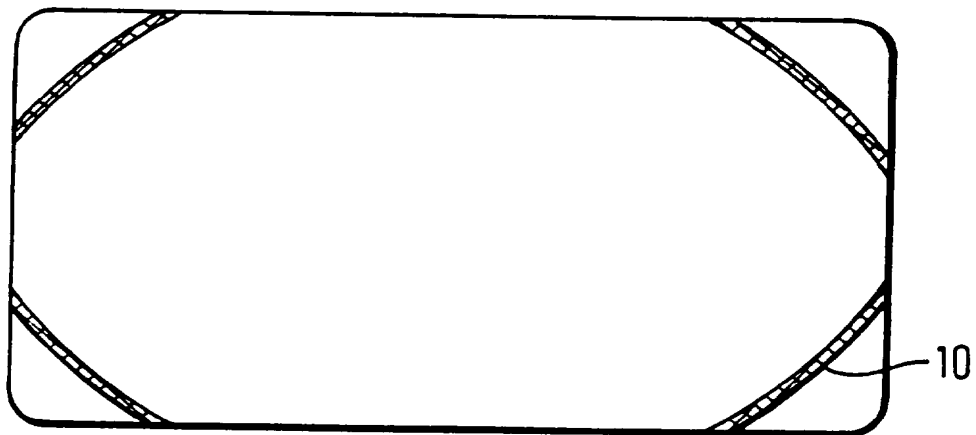
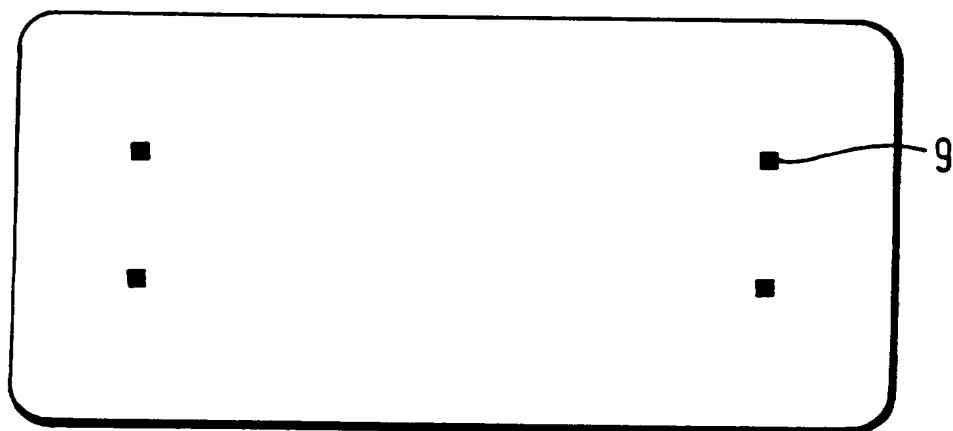


FIG. 4c



INFANT MATTRESS SHIELDS

The invention relates to improved infant bedding for use in isolation or in combination with conventional mattresses.

5 Infant's mattresses are susceptible to contamination. Those with natural fibre covers such as cotton are readily permanently contaminated; whilst mattresses fully encased in integral polyethylene covers, for ease of cleaning, are known to raise body
10 temperature (a factor believed to be involved in Sudden Infant Death Syndrome/Cot Death) and are perceived to be uncomfortable.

This invention seeks to provide alternative infant bedding which overcomes one or more of these
15 disadvantages of existing mattresses.

The invention relates to a disposable, absorbent, sleeping pad for babies and children to be used alone or in combination with conventional infant mattresses. It may comprise layers of woven or non-woven materials interspersed with fluff pulp and super absorbent
20 materials on an impermeable backing sheet; it provides a safe, hygienic mattress shield to protect bedding from permanent soiling. Preferably wetness indicators may be incorporated to show when the device
25 is soiled and should be replaced; a variety of attachment means may secure the device to the

underlying substrate; and perforations may be included to allow a single size of mattress shield to fit different sizes of infant mattress. Scents or decongestants may also be incorporated.

5 The invention will now be described by way of example and with reference to the accompanying drawings in which:

 Figure 1 is a schematic cross-sectional representation of a device according to an embodiment of the invention illustrating the construction of the
10 super absorbent core.

 Figure 2 is a plan view of the upper surface of a device according to a second embodiment of the invention wherein perforations are included.

15 Figure 3 is a schematic transverse cross-section of a third embodiment wherein the core is smaller than one or both of the other layers.

 Figure 4a, 4b, 4c and 4d are plan views of the undersurface of the device of Figure 1 showing
20 different attachment means.

 With reference to Figure 1 the invention comprises a cover sheet 1 an absorbent core 6 and a backing sheet 4.

 The cover sheet 1 is liquid permeable, soft in
25 feel, compliant and non-irritating to the skin. Suitable materials include woven and non-woven

polyester, polypropylene, nylon, rayon and formed thermoplastic films. This surface is pervious to liquids and non-absorbent, so it remains dry and provides a cloth-like layer which allows the free transfer of liquids away from the body into the absorbent core 6 and inhibits the reverse flow of these fluids. It is lint-free and dust-free to provide skin comfort to the user and reduce allergic reactions.

With reference to Figure 2 wetness indicators 2 are incorporated into the cover sheet by the addition of strips, spirals or patches of hot melt adhesive including a wetness indicating component of a flexible, pH change/colour change, coating applied to the underside of the top sheet and visible therethrough.

With reference to Figure 1 the absorbent core 6 is compressible, conformable and non-irritating to the skin. It can comprise any material commonly used for absorption e.g. comminuted wood pulp generally referred as to airfelt creped wadding, absorbent foams, sponges, polymeric fibres or a combination of such materials. Polymeric gelling agents or super absorbent fibres 5 may be deposited through the core to enhance absorbent capacity and fluid retention.

In one embodiment different sized pads can be

produced wherein the core section is sized such that it fully or partially covers baby mattresses of different sizes which are conventionally 113 x 54, 118 x 55, or 138 x 68 cm.

5 In an alternative embodiment referring to Figure 2 the device may be perforated to allow excess material to be removed so that a single pad can be cut to fit a variety of cot mattress sizes.

10 In another embodiment the absorption capacity of the device may be increased by the inclusion of more absorbent material for use by older or larger infants.

15 In another embodiment wherein the device is to be used without a mattress, additional packing material for extra compressibility and added comfort may be included in the core 6.

 The backing sheet 4 is impervious to liquids. It prevents fluids from leaking onto, and soiling, the substrate. Suitable materials include polyethylene films and laminated tissue paper.

20 The layers are bonded together by heat treatment, ultrasonic welding, adhesives or similar means which provide a moisture resistant seal.

25 With reference to Figure 4, in one embodiment adhesive patches 8 (Figure 4a) are provided on the underside of the backing sheet 4 to fix it to the underlying substrate. Suitable adhesives include non-

toxic acrylic, pressure sensitive adhesives applied by spreading or pulverisation on the outer surface of the backing sheet. Alternatively double sided adhesive tape may be applied to the undersurface of the backing sheet. In either event the adhesive regions may be in the form of wide continuous strips, longitudinal or transverse strips, continuous or discontinuous lines, or points.

Alternatively the backing sheet may be fixed to the substrate by elasticated corners or straps (Figure 4b) or Velcro (TM) fastenings (Figure 4c) or a combination thereof.

Additionally or alternatively the backing sheet alone, or the cover and the backing sheet may be larger than the core section as shown in Figure 3 to provide a border of compliant conformable material which extends around the thicker core region, to provide flaps which can be wrapped around a mattress (or even a simple pad of blankets), to secure the device in place, in a manner akin to a conventional sheet.

Perforations in the border may allow strips of excess material to be removed to enable the device to be fitted to a variety of mattress shapes and sizes.

Microencapsulated scents may be incorporated in the device e.g. deodorants, aromatherapy essential

oils with a variety of alleged properties, or menthol and eucalyptus oils to facilitate easier breathing for infants with nasal or sinus congestion.

5 The volume of the product when packaged may be minimised by compression, or pleating, or a plurality of products may be provided on a roll (for example in a continuous strip separated by perforations) to reduce overall bulk.

10 Many other embodiments will be obvious to those skilled in the art. The embodiments described herein are merely examples which do not limit the scope of the invention as defined by the following claims.

CLAIMS:

1. A disposable, absorbent infant sleeping pad comprising a liquid permeable, non-absorbent upper layer, an absorbent, compressible core section, and a liquid impervious lower layer.

2. A device as claimed in claim 1 incorporating at least one wetness indicator.

3. A device as claimed in claims 1 or 2 further incorporating perforations.

4. A device as claimed in claims 1 to 3 wherein attachment means secure the device to the underlying substrate.

5. A device as claimed in claim 4 wherein the attachment means are adhesive regions on the underside of the backing sheet.

6. A device as claimed in claims 4 or 5 wherein the attachment means are elasticated to fix the shield to the underlying substrate.

7. A device as claimed in claims 4, 5 or 6

wherein the attachment means are Velcro (TM) fasteners.

8. A device as claimed in any preceding claim wherein all layers have the same surface size.

5 9. A device as claimed in claims 1 to 7 wherein the backing sheet is larger than the core.

10. A device as claimed in claim 9, wherein the cover sheet is larger than the core section.

10 11. A device as claimed in claims 9 or 10, wherein the layer which is larger than the core further incorporates perforations.

12. A device as claimed in any preceding claim further incorporating fragrant compounds.

15 13. A device as claimed in any preceding claim further incorporating medicinal compounds.



Application No: GB 9508840.7
Claims searched: ALL

Examiner: R E Hardy
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Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A4M; A4S (S13); A5R (RPV)

Int Cl (Ed.6): A47C (21/06); A47G (9/02); A61F (5/48)

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB2262883 A	JOHNSON : Whole document	1 at least
Y	GB2248774 A	MEDISCUS : Whole document	12,13 at least
X,Y	GB2235132 A	EDWARDS : Whole document	1,4-8 at least
X,Y	GB2189993 A	DILLOWAY : Whole document	1,3,4,6,10 at least
Y	GB2183160 A	WILLIAMS : Whole document	2 at least
X,Y	GB1509229 A	COLGATE : Whole document	1,3,10 at least
X,Y	GB1457192 A	GRIDEL : See Figure 7	1 at least
Y	GB1070996 A	ROSS-RUSSELL : Whole document	12,13 least
X,Y	EP0556996 A1	PAPER-PAK : Whole document	1 at least
X,Y	EP0218568 A1	MOLNLYCKE : Whole document	1,4,5,8 at least
X,Y	US4965900 A	SMITH : Figures 2,3 see device 10	1 at least

X Document indicating lack of novelty or inventive step
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Claims searched: ALL

Examiner: R E Hardy
Date of search: 15 July 1996

Category	Identity of document and relevant passage		Relevant to claims
X,Y	US4939017 A	FOXMAN : Whole document	1 at least
Y	US4738674 A	TODD : Whole document	2 at least
X,Y	US3871037 A	WILLINGTON : Whole document	1 at least

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